TACTICAL AIRCRAFT MISSION PLANNING SYSTEM (TAMPS)

Navy ACAT III Program

		Prime Contractor
Total Number of Systems:	3,485	BAE, North America
Total Program Cost (TY$):	$61M	
Average Unit Cost (TY$):		
CVIC Server System:	$200K	
Single Seat Version:	$45K	
Full-rate production:	1986	
SEP Production:	3QFY94	

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The Tactical Automated Mission Planning System (TAMPS) is a computer-based method for weapons planning and optimizing mission routes against hostile targets. TAMPS version 6.2K (Y2K compatible) is employed extensively by embarked Navy and Marine Corps mission planners to achieve *information superiority* for the *dominant maneuver* force of naval tactical aviation. TAMPS is designed to provide a common automated system for rapidly processing large quantities of digitized terrain, threat and environmental data, aircraft, avionics, and weapon systems parameters that assist in the *precision engagement* of enemy forces. The system has an intended capability to meet the tactical mission planning and digital data upload requirements of fixed and rotary wing aircraft, standoff weapons, avionics systems, mission support systems, and unmanned air vehicles.

TAMPS core software is designed to allow flexible interfaces to a wide variety of USN and USMC C^{4}I systems in order to provide users near real time updates to weather and intelligence data bases. A modular, open system architecture was developed to satisfy specialized aircraft weapons and avionics systems requirements while maintaining consistent displays and user interactions across all platforms. Platform unique requirements are provided via a Mission Planning Module (MPM) system that integrates platform developed MPMs with appropriate core libraries and servers providing a complete planning environment for any user platform. This integrated MPM planning environment is used to develop, analyze, and store missions as well as create mission planning products (including digital loads, strip route charts, and pilot kneeboard cards) supporting tactical aviation combat operations.

The current Mission Planning Local Area Network configuration for TAMPS, installed aboard each of the aircraft carriers, consists of an Enterprise 4000 server in CVIC with Sun Ultrasparc 12/1300 workstations located in CVIC and in the Ready Rooms. There is also a Sun Ultrasparc 2300 backup server with three PC-based systems in CVIC, as well. The Sun Ultrasparc systems have upgraded memory, improved processing speeds, and increased system stability over previous hardware.

BACKGROUND INFORMATION

Originally, TAMPS updated the Strategic Air Command's Deployable Aircraft Planning System which supported A-6 and F/A-18 mission planning in December 1985. No IOT&E was conducted prior to fleet release aboard USS Carl Vinson in 1986. Responsibility for TAMPS was transferred to the Program Executive Officer for Tactical Aircraft Programs in August 1991.

TAMPS S/R 6.0.5 was determined to be not ready for full operational test at the OTRR in May 1996. TAMPS 6.0.5 was to be fully tested in support of F/A-18 Operational Flight Program (OFP) 11C; but COMOPTEVFOR raised concerns about system stability and human machine interface issues discovered during a DT assist period. As a result, the planned test period in October 1996 was downgraded to an OA with recommendation for no more than a limited fleet release to those units with OFP-11C and critical data upload requirements.

In February 1998, TAMPS 6.1/6.1.1 was found operationally effective as a mission upload device for supported weapons. However, 6.1/6.1.1 was found not operationally effective for strike planning, threat representation, cockpit quality outputs, environmental effects analysis, and joint interoperability. Version 6.1 was also found to be operationally suitable on DTC hardware, but not suitable on portable hardware, and Version 6.1.1 was found to be suitable on new Sun Ultrasparchardware. COMOPTEVFOR reported that a "non-fleet release" recommendation would be warranted if TAMPS was not already widely deployed and required for digital upload of many weapons systems.

Functions examined using TAMPS 6.2K in 1999 were the F-18 Mission Programming Module, F-18 data loading weapon MPMs (JSOW/JDAM, SLAM, SLAM-ER, and HARM), Forward Area Minefield Planning system, F-14 MPM and F-14 data loading, and HH-60 Global Positioning System data loading.

TEST & EVALUATION ACTIVITY

TAMPS 6.2.1 is an upgrade of TAMPS 6.2K which is scheduled for OPEVAL in early 2QFY01. This new version upgrade will be tested on the following functions: 1. Dual redundant LAN capability ensuring backup; 2. Provide a SIPRNET Browsing capability for CVIC/Ready Room connectivity and Online support of Weather, precision guided weapon support and Almanac updates; 3. Enhance a smoother connect/disconnect from the LAN; and 4. Provide new security features. Challenges of the TAMPS program have not been trivial while implementing a re-architecture of the user interface, upgrade of the operating system and undergoing a contractor change after TAMPS 6.2K. The mere fact of being coded in six different script languages, C, ADA, Fortran, SQL, Perl, and C-Shell, have further complicated the integration and implementation issues. T&E of TAMPS will require considerable time and effort, but until an operational Carrier Air Wing attempts to use it in the environment with the operational constraints associated with combat at sea, there will be questions whether it will be operationally effective and suitable in the Fleet.

Since there are three different LAN versions possible, the CV server using a backup Redundant Array of Inexpensive Drives (RAID) and Challenge Athena as the communication pipe, a mini-server with a RAID but with no backup, and a Server Lite that has no RAID or Backup, there are questions that remain as to how and where the program will be tested. The Mini Server is designed for a major shore-base such as required by the USMC or VX-9 and the Server Lite is designed for a squadron level shore detachment. Testing at the Carrier Air Wing level is optimal.

TAMPS is an integral part of the mission planning support system for F/A-18C/D/E/F, F-14D, E-2C, HARM, Joint Standoff Missile (JSOW), Standoff Land Attack Missile Expanded Response (SLAM-ER) and Joint Direct Attack Missile (JDAM). Other key intended functionalities include operations with Global Positioning System, Tactical Electronic Reconnaissance Processing and Evaluation System, Common Operational Modeling, Planning and Simulation Strategy, and the ARC-210 radio. TAMPS has become a critical weapons planning and data upload system while the mission planning has been handed over to PFPS. Current software releases provide basic functionality and system stability has been improved.

TEST & EVALUATION ASSESSMENT

TAMPS has not fully evolved to provide weapons and mission planning. DOT&E expects operators to continue using PFPS (Portable Flight Planning System) for basic mission planning and TAMPS version 6.2K as a mission upload device for more complex mission planning tasks requiring threat analysis terrain data until the final version 6.2.1 is ready for fleet introduction. OTRR is scheduled for January 17, 2000 and OPEVAL will begin immediately thereafter. A Carrier Air Wing at Fallon NV will be utilized by VX-9 to test full integration. With TAMPS 6.2.1's expected release in July 2001, it may be available for that Air Wing's deployment in September 2001.

The fleet will continue to use PFPS for navigation and fuel planning, coupled with TAMPS Precision Guided Munitions (PGM) planning until the Joint Mission Planning System (version 1) IOC in the fall 2002. Version 1 will not provide PGM mission planning, however the follow on version of JMPS will combine all planning tools using the higher order language H1E in January 2003.